Types of governance in education: a quantitative analysis

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A Quantitative Analysis

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No. 25

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Types of Governance in Education – A Quantitative Analysis

ABSTRACT

This study creates a typology of education systems. It uses empirical analysis to determine six types of education governance on the basis of various factors such as the degree of state involvement or funding sources, and structural differences of average time spent on homework or the degree of support for low achievers. It reveals differences in output among these “types” as measured by student performance, and relative equality of performance. The typology reflects similarities in governance of education among groups of countries, and indicates that common geography and history may be more of a linking factor than expected in a globalized world.

CONTENTS

Types of Governance in Education – A Quantitative Analysis

INTRODUCTION[1]

Comparing educational systems is more complex than simply analyzing spending budgets. This is noted in the classic text on education known as the Coleman report (Coleman et al. 1966), which showed that public spending on education has little effect upon overall output in education. Coleman, therefore, turned to differences between private and public educational systems as appropriate indicators of educational outputs in efficiency and equality (Coleman, Hoffer and Kilgore 1982; Coleman and Hoffer 1987; Heckman and Neal 1996). The major debate in current education sociology and education policy concerns the dichotomy of state vs. market, and the effects of different forms of education system governance on outcomes.

To evaluate the efficiency of different educational systems, an analysis must take into account a broad spectrum of systems. Coleman used a national data set to compare the effects of private and public schools in the US. In what way education is affected by different forms of governance, such as full-scale privatization of education or a centralized education system, however, requires a cross-country analysis. Only macro-sociological comparisons of different national forms of governance allow for detailed evaluation, as unintended side-effects resulting from the interplay of single institutions can properly be taken into account.

A comparative analysis of this kind requires an empirical typology of the forms of education system governance. A typology of regimes is a necessary instrument for comparative analysis of the effects of institutions on individual outcomes. The path-breaking work of Esping-Andersen (1990), creates a typology of welfare regimes, for instance. The policy field of education, however, lacks an analysis based on typologies.

Thus, the aim of this article is to develop an empirical typology of education system governance and show its importance for outcomes. To this end, we first discuss theories of governance and compare various inductive typologies in the present literature, showing that systematic empirical comparisons of governance forms are scarce. We then conduct an empirical analysis using data from a project concerning OECD indicators. Ours is a cluster analysis of 25 OECD countries, for which we explain data and meth-

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[1] The research presented in this paper is part of a research project on *International Education Politics* conducted at the University of Bremen, Germany. The aim of the project is to explore new international dynamics in educational politics and their effects on states and individuals. Research for the project is conducted under the framework of the Collaborative Research Centre *Transformations of the State*, funded by the German Research Foundation (DFG). For assistance in preparing this paper, we would like to thank Lisa Zelljadt, Celia Enders and Jegapradepan Arumugarajah.

ods. The main chapter presents the results of the analysis: six different clusters of governance in education systems. We present the characteristic features of these governance forms with descriptive statistics and summarize them in the final chapter.

TYPES OF GOVERNANCE OF EDUCATIONAL SYSTEMS

Theoretical concepts of governance

The term “governance” is used in different contexts in political science, economics, and political sociology. The use of this term became popular during the 1990s and early 21st century with book titles like “Governance without Government” (Rosenau and Czempiel 1992) and the development of normative concepts of “Good Governance” by international organizations like the World Bank and the OECD.

The impetus for the spread of “governance” as a term is the growing complexity of societal coordination in the last decades. Traditionally, political scientists highlighted hierarchical regulation as one characteristic of the state. In recent decades, however, inefficiencies and limits of governmental authority became obvious in, for instance, the failure of planned economies in socialist countries. Whereas the 1980s were characterized by polarized debates of state vs. market, the debate afterwards turned to the many shades in between or beyond these antipodes (see Young 1994; Ostrom 1990). For lack of a better name, all these forms of coordination and regulation were termed “governance,” which made the concept quite vague. Hewson and Sinclair (1999:7), for instance, assert that “[t]he global governance concept does not refer to a distinct sphere or level of global life. It is not monopolized in any special organizations. On the contrary, it is a perspective on global life, a vantage point designed to foster a regard for the immense complexity and diversity of global life.” Such a broad conceptualization, however, makes it hard to believe that there is anything that is not “governance.” Regarding employment of the term for normative purposes besides analytic goals as an often problematic tendency, we restrict our usage of it to analytic purposes only.

In our research we therefore define *governance* as a specific form of coordination of social actions characterized by institutionalized, binding *regulations* and enduring *patterns of interaction*. Different forms of governance can be grouped between the poles of institutionalized self-regulation of civil societal elements on the one hand, and authoritative decision-making by governmental actors on the other - with a wide intermediate range including cooperation of governmental, private, and various collective actors. The three main forms are a) *market*/decentralized decision-making with a coordinating price mechanism; b) *state*/hierarchical with intentional steering as the coordinating element; and c) *network*/self-determination with associations and negotiation systems as coordinators.

Problems with coordination are the prerequisite for all these forms of institutionalization of governance. A given governance type can thus be evaluated in terms of its capacity for collective action, its ability to reach decisions jointly, its ability to solve shared problems, and its democratic legitimacy. Institutionalization of the respective governance form defines actors' interests and payoff-schemes (Benz 2004; Mayntz 1997, 2004; North 1990; Ostrom 1990) and, thus, implies distributive effects for the resources of a collectivity. This is especially true for education systems, which are all the more complex because of the many different actors at different levels: there are internal structures of interaction separate from the overall system such as interactions between teachers and students.

Nevertheless, it is broadly possible to fit some education systems into general categories for evaluation. The education system of the former German Democratic Republic (GDR) is a good example of a pure centralist governance form (Lenhardt 1997): the state hierarchically controlled and predetermined the actions of its teachers, who could only organize themselves in state-controlled unions. As a consequence, this governance form was highly capable of reaching collective decisions, however, with a very low degree of democratic validity. Moreover, resources (in form of educational certificates) were purposely kept in short supply, so as to guarantee a redistribution of power from parents and students towards the central state and its state-controlled teachers.

Most other empirical examples are rather mixtures of different forms of governance. One is the British system, in which reforms during the 1980s and 1990s led to what in academic literature is called a "quasi-market" governance form (Green, Wolf and Leney 1999; Crouch 2001, 2003). Despite the government's attempts to legitimize reforms in the public through privatization and market rhetoric, the price mechanism – central to a pure market governance form - does not actually run this system. Parental school choice, state-centralized school curricula, and commercial evaluation organizations characterize this governance form.

Literature on what processes cause types of governance to unfold themselves is rare. Esping-Andersen's causal thesis is that class conflicts and historical class compromises are institutionalized by the state, thus, making a pattern or historical path to be followed and modified later on. In a public choice tradition, forms of governance are analyzed as if they are the result of a single rational decision of a collectivity to design an efficient and egalitarian system. However, as North (1990) and other institutionalists have shown, history is important insofar as path dependencies keep national systems on their institutional track, even if comparative efficiencies are suboptimal. As Rokkan (1999) demonstrates, geography is equally important for the development of systems in which the state and society interact. Geographic proximity facilitates cross-national learning. Cultural "dominions" (e.g. religion) and political empires can influence neighboring

countries, sometimes by exertion of power. Many comparative case studies inherently argue in a North-Rokkan way, as they imply that historical development and learning within given social systems are as important as abstract constellations and interests.

It may be argued, however, that in our globalized world connected by mass media, the likelihood of geography influencing decisions about governance forms is low. All developed countries participate in similar discourses and have access to similar information regarding governance structures and education methods. Thus it is primarily an empirical question whether geographic proximity still influences governance of educational systems - one which our analysis seeks to answer.

Empirical typologies of educational systems

In the tradition of Max Weber, an empirical typology of educational systems follows the logic of either an “ideal type” or a “real type.” Whereas real types are usually a combination of an analytical concept and empirical phenomena, an ideal-typical approach instead seeks to differentiate between the empirical world and theoretical assumptions. Thus the “tool kit” for operationalizing ideal type typologies consists of a) stating the boundaries of the analytic dimensions, b) finding indicators that can be measured, and c) grouping countries according to their scores relative to these indicators.

Most existing empirical typologies of educational systems do not follow this ideal type operationalization in a strict sense. There are three approaches to building empirical typologies of educational systems in the literature. *Historical models*, like that of Archer (1989) or Heidenheimer (1981), argue that education systems and differences among them be perceived as holistic configurations. Typically, these authors’ models are the result of in-depth analysis of only a few case studies of countries, summarized in a general interpretation. One problem with this approach is that it combines country-specific, historical, and analytical dimensions in indicators. Other empirical typologies of educational systems focus on *dimensional analysis*. They refer to education system processes, institutional characteristics, and resulting outcomes. Müller and Shavit (1998), for example, take three institutional characteristics of the education system (degree of standardization, degree of stratification, and degree of content-specificity of vocational education) and one characteristic of the receiving institution (qualificational vs. organizational space) to analyze school-to-work transition outcomes. The typology rests on the dimensions, not on the countries. One problem with this approach is a dependence on “expert ratings” of (predominantly nominal) values for the dimensions. Such approaches also usually encompass only a small number of cases, often they are based on fewer than ten countries.[2] Typologies that rest on *measured values of indicators* are rare. The OECD (2000) differentiates “apprenticeship countries” from “mixed

[2] The work by Müller et al. (1998) and colleagues is an exception, as it is a rather “large” study with 13 cases.

pathway countries”, “school-based vocational countries” and “general education countries” according to percentage values of participation rates on different forms of secondary education. It does so, however, by using only a single indicator. Thus, what is missing overall in empirical typologies of education systems are typologies that (1) include more than a few cases, (2) combine a number of relevant dimensions and (3) use measured values of indicators.

Some empirical typologies of the governance systems in education can be found in the field of *higher* education. Rhoades (1992), for example, differentiates governance in higher education according to national models of authority distribution. He distinguishes academic/professional authority from political/bureaucratic authority. With this distinction, he demonstrates a shift of governance authority from academic to political/bureaucratic forms. Again, however, the study is based on his assessment of developments in only four countries. The typology by Heidenheimer (1992) is more complex, comparing predominantly public systems (Switzerland, Germany) to systems with large share of private institutions (Japan, USA) and centralized political authority (Japan) to federal political authority (Switzerland, Germany, USA).

The study of Green et al. (1999) stands out from the literature of governance typologies, as it encompasses a larger number of cases/countries (15 EU-countries). It also evaluates all levels of education systems, from schools to vocational training. However, descriptions and categorizations of different levels are not synthesized to a single typology of the whole educational system. Rather, the manifold results of the study are condensed into three forms of political authority important for educational systems: “central”; “federal”; “local.”[3] A country may change its form of political authority in this context, however, as can be seen in experiments with the governance form “quasi-market” already referred to in the case of the British system.

In brief, no current approaches to empirical typologies of governance forms of education systems use quantifiable indicators in a systematic way, combining different levels of educational systems. We attempt to create such a typology, testing it in the next section with empirical evidence.

DATA AND METHODS

Data

Until recently, the major difficulty with empirical analyses of educational systems was a lack of adequate data. Statistics were either non-existent, incomplete, or incomparable. This situation changed during the 1990s, when the OECD re-started a project on educational indicators (Bottani 1996; Henry, Lingard, Rizvi and Taylor 2001). By now, its

[3] Local authority (e.g. school districts) is a major source of heterogeneity in some education systems.

annual publication “Education at a Glance” represents the largest corpus of publicly available educational indicators for developed countries.

However, even though the OECD uses adjusted data, its statistics are not harmonized. Despite the OECD’s policy of collecting data according to precise criteria, differences in the historical developments of diverse education systems reflect variance in indicator values. Moreover, the degree of equivalence of indicator values in the statistical representation of education systems differs among the participating countries. Such difficulties influence the quality of empirical analyses and have to be taken into account when interpreting the results. However, the comparability of data is gradually increasing as the OECD actively harmonizes its education indicators. A spectacular example of this process of synchronization is the PISA-study that produced a type of educational indicator completely new to some countries.

Our empirical data analysis uses “Education at a Glance” (OECD 2002*a*) and some indicators from “Financing education” (OECD 2002*b*). Before analyzing the data statistically, however, a crucial step is of theoretical nature: what educational indicators measure what kind of dimension representing which types of governance? As the empirical quantitative research in this field is rather new, we selected a broad array of dimensions: input (source of funding, school processes); integration; output (efficiency, equality). The input dimension “source of funding” reflects the public vs. private dichotomy (Levin 2001). The input dimension “school processes” is central to explaining differences between public and private schools (Coleman et al. 1982:88 et seq.). Some researchers discuss the comparative dimension “integration” under the heading of stratification (Allmendinger 1989; Allmendinger and Hinz 1998; Müller et al. 1998). Our study follows this method, in an effort to determine “output.” Contrary to some theoretical considerations of educational sociologists (e.g. Sørensen and Morgan 2000) we treat “efficiency” as an output dimension that may vary independently of the degree of “equality” produced by the education system (Riordan 1997). That is, equality of output is not considered a component of efficiency in this study. This has the advantage that our measurement of output considers both the achievement of students in general, and the relative distribution of that achievement among students in the respective society. As the governance of a system, according to our definition, consists of a specific form of coordination of social actions via regulations and patterns of interactions, it also connects many vital dimensions of education systems.

The empirical analysis consists of three steps. First, we combine a number of similar indicators via factor analysis in order to derive latent sub-dimensions. In a second step, we use these extracted factors and major indicators of the input dimensions to cluster countries by governance type. In a third step, we determine which countries have clus-

tered together by looking at the frequency distributions of both the constitutive variables and the external variables (those that measure integration and output).

Factor analysis

Factor analysis is a method of information reduction. Any variables considered in the following analysis have been z-standardized (Table 1), and they are indicators for the two input dimensions “relevance of the private sector” and “promotion of the private sector by the public.”

The main diagonal of the anti-image correlation matrix (not shown here) depicts measures of sampling adequacy for each single indicator. Only one of these values is lower than 0.6 (0.51), which the statisticians Kaiser and Rice would consider “miserable” (Kaiser and Rice 1974). For the complete correlation matrix, the measure of sampling adequacy was msa=0,729 (“middling”). Despite the small number of cases, each indicator is strongly influenced by the one of two latent dimensions. Consequently, each indicator corresponds only with one factor.

The two dimensions can be labeled as follows: the first measures “promotion of the private sector by the public” and the second “relevance of the private sector.” The latter implies that public funds are spent directly and to a comparatively high degree on private educational organizations. Moreover, a high proportion of students is enrolled in private schools at each level (1. primary, 2. lower secondary, 3. upper secondary).

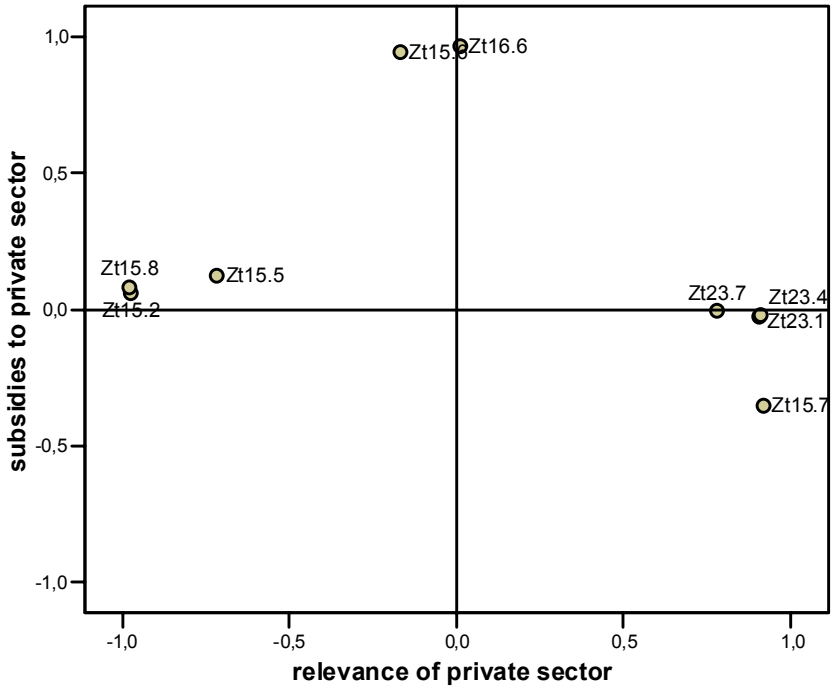
Table 1: Varimax rotated matrix of principal components

	Component	
	1	**2**
Zt15.8 Direct public expenditure on private institutions, all levels of education	-0.981	
Zt15.2 Direct public expenditure on private institutions, non-tertiary	-0.978	
Zt15.7 Direct public expenditure on public institutions, all levels of education	0.916	
Zt23.4 % students public, lower secondary educ.	0.907	
Zt23.1 % students public, primary educ.	0.902	
Zt23.7 % students public, upper secondary educ.	0.777	
Zt15.5 Direct public expenditure on private institutions, Tertiary	-0.718	
Zt16.6 Public subsidies for education to private entities as a percentage of GDP		0.968
Zt15.6 Indirect public transfers and payments to the private sector, Tertiary		0.947

Source: OECD 2002b, tables 15 et seq., own computations

It is important to note that there are two different ways of integrating the private sector. Either the state directly funds private education and private institutions, or it gives education allowances to students and their families in the form of so-called “school choice.” Indeed, empirically we find two distinct dimensions. Figure 1 shows a two-dimensional plot of the factor loadings.

Figure 1: Varimax rotated factor solution. Two subdimensions of public/private governance of education



If the sample size were larger, it would be advisable to include more indicators into factor analysis in order to achieve a small number of latent dimensions. The data set used in the study at hand only consists of 25 cases, so there would be a danger of finding chance correlations if the number of indicators became too large. Moreover, the measures of sampling adequacy would suffer from more complex correlation matrices. For this reason, all other indicators for the cluster analysis enter as separate variables into the cluster analysis.

Cluster analysis

The analysis contains some other indicators related to governance of education besides the extracted factors just explained. We selected indicators according to the idea that governance of education structurally influences different dimensions of educational systems (Table 3).

1. At the student level there are different kinds of skill-acquisition. Skills may be acquired through organizations offered by the state or via the market, for instance. In addition, educational organizations differ in the relative number of hours they spend on PISA test-language, mathematics, or sciences.

2. The second dimension refers to the impact educational organizations have on students' behavior, in the sense of the behavioral model of organization. In organizations, persons transfer control of their actions towards the goals (in this case the goal is education) of the organization (March and Simon 1958; Luhmann 2000). As a result, certain

behaviors emerge that are extremely unlikely from an evolutionary point of view. Actions of students can be coordinated with respect to two goals, namely the enhancement of their skills in the most effective way, and the reduction of inequality of skill levels in general. The question of how schools can reach these two goals depends on several conditions, including the level of school autonomy, the disciplinary climate, and the achievement pressure.

3. The third dimension refers to financial resources for education organizations, and for students and pupils. Indicators measure the proportion of private funding spent on education, the proportion of public expenditure going to private education, public subsidies to private persons (individuals, students, households) in percent of GDP, and the proportion of students enrolled in public educational organizations (separately for each educational level).

Table 2: Constitutive variables of the cluster analysis

D1.3.1	Special courses for gifted students
D1.3.4	Special tutoring by staff members
D1.3.16	private tutoring
D1.3.19	weekly hours spent on homework (in test language, maths, science)
wd5.2.10	Index of school autonomy
wd5.2.16	Index of disciplinary climate
wd5.2.19	Index of achievement pressure
	Proportion of private sources spent on educational organisations:
t13.4	lower than tertiary,
t13.6	tertiary,
t13.8	all levels
factor 1	Sub-dimension 1 as result of factor analysis: Relevance of the private sector (direct spending und proportion of students)
factor 2	Sub-dimension 2 as result of factor analysis: subsidies the private sector

The indicators listed in Table 2 are all z-standardized. We calculated their squared Euclidean distances, on the basis of which we then conducted our cluster analysis. Figure 2 shows the inverse scree plot, which can be used for an evaluation of the cluster solution. An “elbow” occurs when the 6 cluster solution merges to a 5 cluster solution, so that the 6 cluster solution is retained. It must be noted that a formal test of the Mojena stopping rule no. 1 criterion (Aldenderfer and Blashfield 1984:57) rejected all of these cluster solutions. In practical experience, the Mojena criterion is not appropriate in cluster analyses that use small sample sizes, so we rely on the elbow criteria, the visual inspection of the dendogram, and the substantive meaning of the clusters.

Figure 2: Inverse Scree Plot, within sum of squares, Ward Algorithm, squared-Euclidean distance

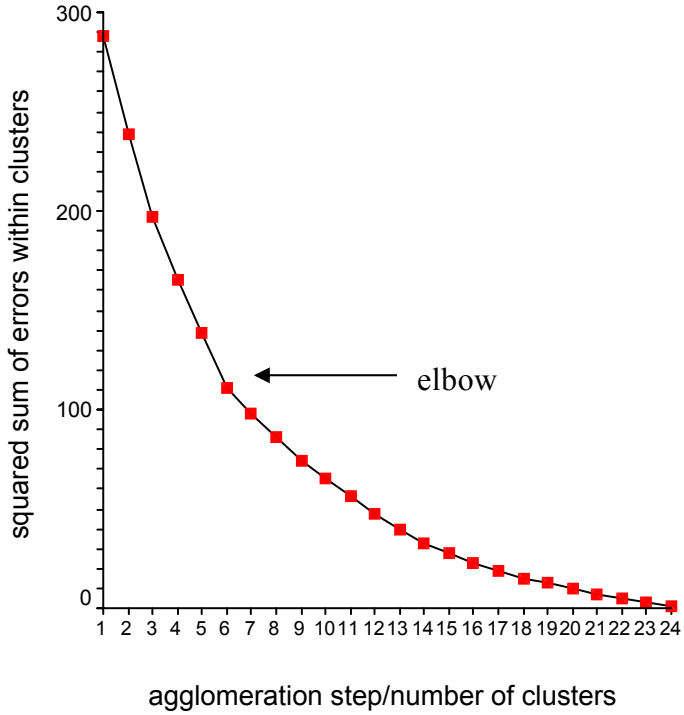
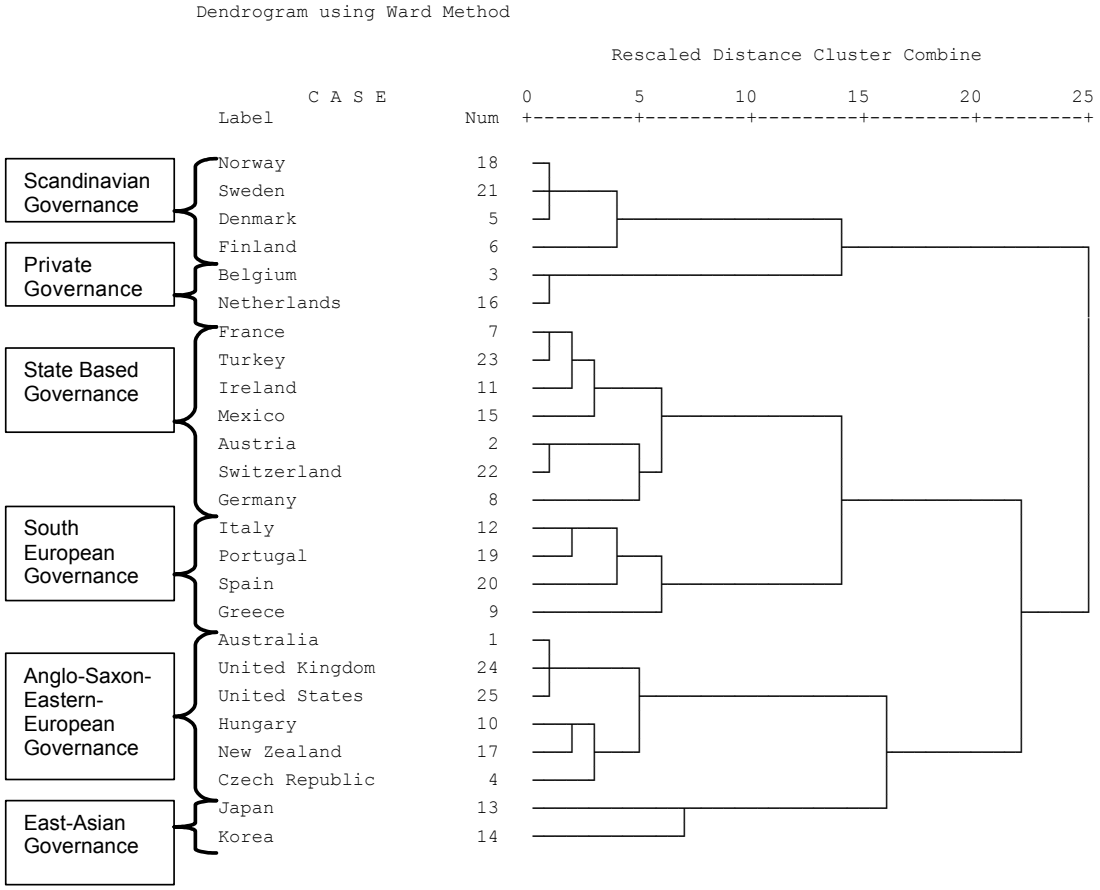


Figure 3 shows the dendogram. For simplicity, we have chosen to label the clusters according to a significant similarity, or simply to their geographical location. Dendograms are very informative on their own because one can directly compare the agglomeration levels between the clusters. Those countries showing the greatest similarity merged at the “lowest” level. That is, they are already connected with each other at the left margin of the diagram.

Already at the lowest level, Norway, Sweden, and Denmark merged into one cluster. Finland joins the cluster “Scandinavian Governance” at a later (or higher) level. Belgium and the Netherlands merged immediately to form the cluster we have called “Private Governance”, meaning they are very similar with respect to indicators in this analysis. Japan and Korea are less similar, but closer to each other than to other countries. Thus, they merged into one cluster at a rather high agglomeration level (“East-Asian Governance”).

Another cluster, labeled “State Based Governance,” has two main pillars: the German speaking countries on the one hand and France, Turkey, Ireland, and Mexico on the other. Interestingly, Germany joins the German speaking sub-cluster at a comparatively high agglomeration level. This is similar to Spain, which joins its cluster “South European Governance” at a high level as well. Finally, Australia, the UK and the US are very similar so that they merge already during the first step.

Figure 3: Dendogram of six cluster solution of educational governance forms



SIX TYPES OF EDUCATIONAL GOVERNANCE – DESCRIBING THEIR CHARACTERISTICS

Now that we have established the clusters according to the criteria of squared Euclidic distances, this section describes the distribution of the variables that measure cluster distances. These are: 1) the two factors, named “promotion of the private sector by the public” and “relevance of the private sector”. 2) individual items which constitute those factors, and 3) the remaining variables. We show univariate distributions of these variables over the clusters.

Figure 4 shows the mean of the factor scores within each cluster. Variables loaded on the factor “relevance of private sector” measure the direct financing of private educational institutions and the share of students in private institutions. The variables loaded onto the second factor measure the extent of “public subsidies to the private sector” in the form of support for individuals (students and households). Note that this factor is different than and separate from public financing of private *institutions*, a difference which proves significant in the discussion.

As regards the financing of educational systems, the “East-Asian” and “South European” systems are similar. In both governance types, the relevance of the private sector

is modest to minor, and the subsidies to the private sector are low. Similarly, the Scandinavian cluster shows little relevance of the private sector, but subsidies to the private sector are particularly high. The private sector of countries in the “private cluster” is strikingly huge because of the large amount of private schools, but subsidies to it are only just above average. For the “State Based” countries, both dimensions are low, while the “Anglo-Saxon-Eastern-European” cluster (hereafter referred to as “Anglo-Eastern” for simplicity) has high subsidies and about average relevance of the private sector.

Table 3 summarizes the findings regarding the central characteristics of each cluster:

Table 3: Governance of Education: Typology at a glance

		Anlgo-Eastern	**State Based**	**Private**	**Scandi-navian**	**South European**	**East-Asian**
cluster variables	Cluster means of factor scores:						
	Relevance &	-.04	-.37	3.01	-.57	-.22	.05
	subsidies to private sectors	.30	-.56	.03	1.65	-.79	-.68
	% private financial sources of education:						
	Non tertiary	10.4	10.5	6.7	.97	5.9	14.0
	tertiary	32.8	12.4	11.2	5.5	13.1	67.4
	all levels	16.9	10.5	7.6	2.7	8.8	32.8
	% pub. exp. on pub. inst, all levels:	84.2	90.9	35.3	80.9	92.3	88.6
	% pub. exp. on priv. inst. by lev of educ.:						
	to non tertiary,	8.1	4.3	62.7	11.3	6.4	7.6
	to tertiary	15.6	2.0	42.5	3.8	.5	22.5
	to all levels	9.4	4.4	56.5	4.6	5.2	9.7
	Distribution of students over public inst. by lev of educ., %:						
	to primary,	91.4	95.0	38.5	95.8	85.8	98.8
	to low secondary	90.3	89.7	33.1	92.4	87.1	86.0
	to upper secondary	64.2	88.5	23.8	93.7	87.8	57.2
	Transfers to private, tertiary education	20.1	9.9	20.2	27.8	8.9	6.05
	Transfers to private in % of GDP	.26	.11	.25	.60	.07	.16
	% in schools extra courses for gifted students	56.8	28.3	13.5	28.7	15.5	23.5
	% in schools special tutoring by staff	78.6	45.1	63.5	86.7	78.2	75.0
	% in schools private tutoring	8.5	6.7	4.0	.75	11.0	11.0
	weekly hours spent on homework in core fields (e.g. test language)	4.8	4.5	4.2	3.9	5.6	3.6
	school autonomy	6.5	4.4	6.2	5.67	2.7	4.9
	disciplinary climate	5.2	5.4	3.9	4.2	3.9	5.7
	achievement pressure	5.6	5.0	4.1	5.3	5.0	2.4

		Anlgo-Eastern	State Based	Private	Scandi-navian	South European	East-Asian
external variables	Reading performance	509	491	504	516	480	523
	% in school special courses test language for low achievers	74.5	66.8	53.0	87.0	80.0	44.0
	5^{th} & 95^{th} perc. of reading performance score	333 665	323 639	320 653	347 660	319 623	384 639
	proximity highest (95^{th} perc.) to lowest (5^{th} perc.) achievers in reading performance	50.1	50.5	49.1	52.5	51.3	60.1
	Standard deviation of reading performance	100	96	101	95	92	77
	social class reproduction	36.3	35.1	34.0	26.6	29.8	24.1

Anglo-Saxon-Eastern-European Governance[4]

The private sector has medium relevance to the Anglo-Eastern cluster, but is well-financed both through high governmental support for students and households, and high levels of private financing. Public spending is mainly for public institutions: private institutions receive government subsidies only in the tertiary education sector. Students in these countries appear to attend public institutions mainly in the primary and secondary education sectors. Even at the upper secondary level, the share of public institutions is at 64%, which is comparatively low. Generally, schools show a high degree of autonomy, and are perceived to have above-average achievement pressure and discipline.

As regards the support for talented students, the Anglo-Eastern cluster is leading among the countries in this study. The percentage of students receiving individual tutoring is very high, as is the percentage of pupils attending special courses for *low* achievers in the national language (PISA test-language). PISA performance tests in this cluster are on average good. Distribution patterns, however, reveal that the weakest 5% of this cluster score below the combined average of the weakest 5% of all clusters together. The highest achievers in this cluster, on the other hand, perform better than the top 5% of all clusters' combined average. This indicates that the comparatively good average performance of this cluster corresponds with high inequality, as performance levels are extremely stratified.

[4] It must be noted that most correlations in cluster characteristics described in this section should be interpreted as such and not as uni-directional relationships. In an attempt to avoid sounding overly technical in the review of results, we may have formulated some statements in a fashion suggestive of causality, which can in no way be determined from the statistical relationships illustrated here.

In brief, the Anglo-Eastern cluster maintains a form of governance that differentiates students as to their level of performance, as is represented by the high values for the factor “inequality.” This group of countries supports its talented students by far the most and it shows a high level of private tutoring. The reproduction of social classes is also high. In addition, the share of private financing of education is above the average, but it is also highly subsidized.

State Based Governance

Subsidies to and relevance of the private sector are low in State Based countries. Public spending on private institutions is low as well, regardless of the level of education. About 90% of students are enrolled in public schools, decreasing only slightly with increasing educational level. Transfers to the private sector are low in the State Based cluster too. The percentage of students at schools offering individual training is low, but discipline and achievement pressure are rather high.

Compared with other clusters, the output of this educational system is not very high: the mean achievement level is low, inequality is moderate and the reproduction of social class is surpassed only by the Anglo-Eastern cluster.

Private Governance

The main characteristic of the private systems is financing: whereas the relevance of the private sector is by far the highest of all clusters, public subsidies to individuals (students and households) are rather moderate. The proportion of public resources spent on public institutions is also low. In this cluster, it becomes obvious what has been denoted by the factor “relevance of private sector”: by far the largest percentage of public money is spent on private *institutions*. These educational systems are based on public financing of private schools, and, accordingly, the proportion of students at public institutions is by far the lowest.

Private Governance systems rarely offer special training or tutoring, either for gifted students or low achievers in domestic language (test language). This may be reflected in achievement results, as the relative achievement of the lowest 10% is 49% of the test core of the best 10%, meaning that the *relative* achievement of low achievers is *lowest* of all the clusters. Inequality as indicated by the standard deviation is as high as in the Anglo-Eastern cluster, making it tied for least egalitarian education system. School autonomy is high, and discipline is perceived to be low.

Scandinavian Governance

Although private education has low relevance in the Scandinavian cluster, it is those countries that have the highest state funding to individuals (students and households). Relative to the other clusters, by far the lowest amount of funding for non-tertiary edu-

cation comes from private sources. Tertiary education is privately financed only to a low degree as well. The overall percentage of public money going directly to private institutions is low, and consistently so across all educational levels. The percentage of students in these private institutions, however, is low. It is striking that the proportion of education spending paid to the private sector as *indirect transfers* (support of individuals, education allowances) is highest in the Scandinavian cluster - even when that spending is computed as a proportion of GDP.

A large percentage of students is enrolled at schools offering individual training, whereas an extremely low proportion draws upon private lessons or tutoring. Similarly, a large proportion of students is enrolled at schools offering special courses for low achievers. Maybe for this reason, inequality is low or at least moderate in this cluster: those who are among the lowest 5% achieve 51% of the score of those who are among the best 5%. According to this criteria, the Scandinavian cluster ranks second behind the East-Asian states (the Asian cluster is an exception in this regard, see below).

With respect to the mean rank of the PISA student achievement, Scandinavian educational systems are the second best (with clear distance to the next higher and lower position) behind the East-Asian, but above the Anglo-Eastern clusters. The number of hours spent weekly on homework in core fields is comparatively low. Autonomy of schools is high, discipline is low, and achievement pressure is low as well. In general, inequality of achievement is moderate at a high level of performance, and reproduction of social classes is quite weak.

South European Governance

As with the State Based cluster, relevance of the private sector is rather low in the south European countries. Direct public spending on tertiary education is lowest, as is public spending on education in general. The proportion of students enrolled at public schools is high consistently over all education levels. Transfers to the private sector in terms of educational assistance are low, even if measured relative to GDP.

South European states share the top position with respect to private lessons. The perceived achievement pressure is high, as is the number of hours spent weekly on homework in core fields. A large proportion of students are enrolled at schools offering individual training. In contrast, school autonomy and discipline are low, and there is extremely low student performance even though there are many students at schools offering special courses for low achievers. Compared with other clusters, mean scores of these low achievers rank in a middle position while mean performance of top achievers is the lowest: gifted students are offered little special support. As far as overall inequality is concerned, the South European states rank at a middle position, but this at a rather low level of mean performance.

East-Asian Governance

Like the private systems, the East-Asian governance cluster consists of only two countries and belongs to the two smallest clusters. As far as public spending on private educational institutions is concerned, it ranks on position two: 67% of all tertiary education is financed from private sources, which is even much more than in the Anglo-Eastern cluster (about 32%). The government subsidizes private institutions only in an indirect way. Compared with other clusters, public spending on education allowances and other support of individuals is lowest, but about in the middle if considered relative to GDP.

In primary education, almost all students in these countries are enrolled in public institutions. This proportion decreases steadily with increasing educational level. In upper secondary education, that proportion is even smaller than in the Anglo-Eastern cluster, putting the East-Asian system in the middle as regards this dimension. Together with the South European cluster, the East-Asian cluster shares the top position with respect to private lessons, but weekly hours spent on homework are moderate. Interestingly, discipline is highest in East-Asian schools, but perceived achievement pressure is by far the lowest.

The other striking characteristic of this cluster is the fact that maximum efficiency and comparatively highest equality of student performance do not contradict each other: the 5% of students with lowest performance achieve at least 60% of the score of the best 5%. This is exceptional compared to all other clusters. With respect to standard deviation (the measurement for inequality), the East-Asian cluster can be considered an outlier because it is so low. This means that there is extremely high equality of education among students in the countries of this cluster. The reproduction of social inequality is also lowest in this cluster.

DISCUSSION

Considering theories of historical path dependencies and geographical proximity mentioned in the introduction, results of the cluster analysis yield some interesting insights. First, what constitutes the “non-public” sector in education varies greatly by cluster. On the one hand, the private sector as it exists in the countries of the “Private Governance” is made up of religious and non-profit organizations financed as institutions by the state. A large majority of students is enrolled in private institutions. Thus, the governance structure is that of the state delegating education to public-minded institutions. On the other hand, private education can be understood as arrangements *not* provided for by the state, in which the family or the private household must carry the financial burden of education. In this respect, the East-Asian cluster shows a high level of privately-funded education, at least at higher levels. Extremely high degrees of privately-financed tuition are a characteristic of both countries of the East-Asian cluster. In fact, South Korea is

the only country in the OECD in which higher education is financed predominantly by private persons. This governance structure resembles an economic market more than that of the Private Governance cluster, whose countries (the Netherlands and Belgium) have primarily religious private educational institutions not paid for by private persons.

Second, geographic proximity does indeed appear to be an important factor contributing to patterns of education governance. The countries of at least three of the six clusters are very close to each other geographically: Private Governance, East-Asian Governance und Scandinavian Governance. The “Private Governance” cluster consists of Belgium and the Netherlands, two neighbouring countries which share hundreds of years of historical entanglement. The “East-Asian Governance” cluster of South Korea and Japan also embodies neighbouring and historically interconnected nations. The “Scandinavian Governance” cluster combines Norway, Sweden, Denmark, and Finland, which also share geographic proximity and historical commonalities. Thus, these three clusters support the thesis of Rokkan (1999) that geographical and historical proximity influences the development of different forms of modern governance. The Rokkan approach does not account for all clusters: in the Anglo-Saxon-Eastern-European governance cluster, historical roots do connect Australia, the United Kingdom and the United States, but New Zealand cannot be said to have relevant geographical or historical ties to the Czech Republic. In the State Based governance cluster, the Germanic countries are connected by history and neighbourhood, but, for instance, Mexico and Turkey are not.

The empirical typology of education systems differs from the theoretical typology proposed in the first chapter. Differentiation of governance forms, like federal and local, or central state and quasi-market, seem to be less important than differences between types of education systems according to geographic proximity. Federal education systems, like Germany, Switzerland, Spain and Australia, show up in three different clusters (State Based, South European, Anglo-Saxon-Eastern European). Central education systems are similarly spread among different clusters. Only the East-Asian governance cluster (central education system) and the Scandinavian governance cluster (formerly central, now local) unite single theoretical governance types. As these two clusters support the Rokkan thesis, it appears useful to view governance not only as a current regulation type but as a form of regulation that follows historical paths.

Contrary to the view that globalization has decreased the relevance of geographic proximity, Rokkan’s (1999) approach of following paths in time and space to reconstruct typologies of state and culture appears to apply to educational systems, and may be a helpful method to use in future studies. *How* proximity of countries produces similarity in their education systems is a question beyond the scope of this article. It remains to be seen whether globalization accentuates the proximity effects or whether it dimin-

ishes their influence on the development of governance types. This article is a starting point for more detailed research into, for instance, causality of such typologies as the ones analyzed here.

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